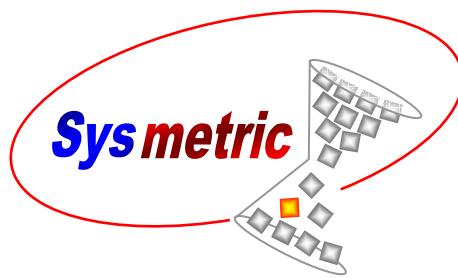


InjMan

Monitoring and data acquisition software
for injection molding plants

User Manual



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1. Introduction

The InjMan program is designed to manage and control production floors in plastic factories using injection machines.

1.1. Main Features

- View factory status – machine and work order status.
- View and edit all set-points.
- Full data acquisition and data history. Records all details, throughout manufacturing orders, of number of products injected, number of rejected products, number and type of machine faults etc.
- Full tracking of each machine throughout production allowing analysis of setup times, of machine faults and stops, machine efficiency, the efficiency of the product planning and control in allocating production orders etc.
- Recipe management – the saving and subsequent loading of recipes according to Production Orders.
- Flexible reports based on acquired data.
- The program and all of its features can be run from each computer in the factory network.
- Modular system enabling the easy addition of machines.
- Works with external ERP, can import production orders and export performance reports.

1.2. How to use this manual

Section 2, Running InjMan, shows how to start the program and initial orientation. Read the section in order to become familiar with the terms used throughout the manual.

Section 3, Changing Set-Points - how to control the line's properties.

Section 4, Creating and Handling Production Orders - explanation of production orders.

Section 5, Database – explanation of the database.

Section 6, Reports - shows how to produce reports.

Section 7, Appendix - various screens and reports, examples of screens that may vary between different installations.

2. Running InjMan

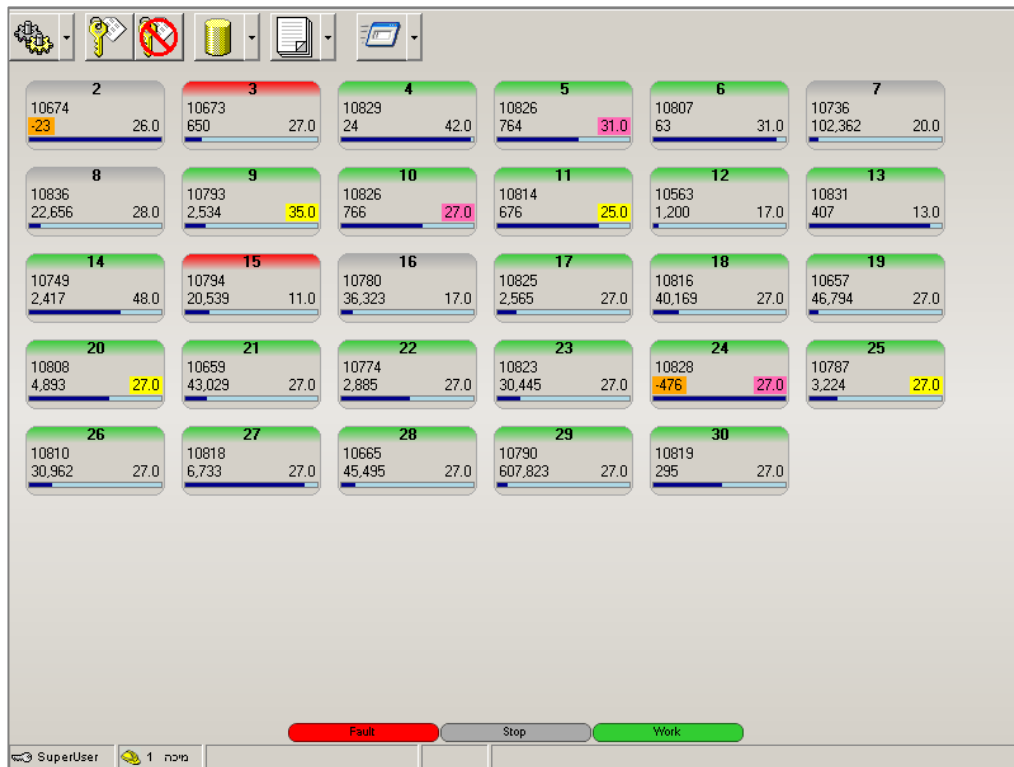
This section explains how to run and become familiar with the InjMan program

2.1. Configuration

The program can run simultaneously on a number of computers on the factory network and therefore consists of a core program and a UI (User Interface) program. The core program only runs on the online computer (the computer that is physically connected to the PLCs), it does all of the work (automatic and manual operations), does not have a user interface and runs automatically upon the computer's startup. The user can start the UI program by double clicking the InjMan icon on any computer on the factory network. This manual describes the UI program.

2.2. Screen Structure

When the program starts the main screen appears with a table of all of the machines:



Example of Main Screen

Each machine is represented by a tab showing basic machine data (machine status, mold, planned injections, planned cycle time, actual cycle time...). Double clicking on the machine tab opens the machine screen.

2.3. Machine Screens

After double clicking on the machine tab in the Main Screen the Machine Screen appears. The Machine Screen contains five separate pages providing control on the machine data.

Machine details HAITAI 1400

Info Stops Progress Dosing Production order queue

Production order
 000112
 Planned: 2,500 Done: 15 Remain: 2,485
 Start time: 30/12/2008 15:22 Time left: 20:34
 End time: 31/12/2008 12:34 Remained Material: 1888.6

Status
 Working
 Duration: 01:41:29
 Since: 30/12/2008 14:19

Production
 Mold: BOLT 300
 Start time: 30/12/2008 15:22 Cycles: 15
 Shift: 30/12/2008 16:00
 Production Order: 30/12/2008 15:22


Mold
 No.: 10330
 End time: 31/12/2008 12:34
 Next: DBD 103
 31/12/2008 12:34 2,485
 Standard cycle time: 30.0

Products

| CatalogNo | Description | cav | Planned | Done | Rejected | Good | Left | Weight |
|-----------|-------------|-----|---------|------|----------|------|-------|--------|
| 1010307 | OUTER BODY | 4 | 10,000 | 60 | 0 | 60 | 9,940 | 0.06 |
| 1010308 | INNER BODY | 4 | 10,000 | 60 | 0 | 60 | 9,940 | 0.13 |

Example of Machine Screen

The various pages content and layout are described in the appendix as they vary between installations.

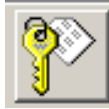
Click on  or Esc to return to the Main Screen.

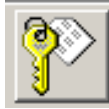
2.4. Authorization

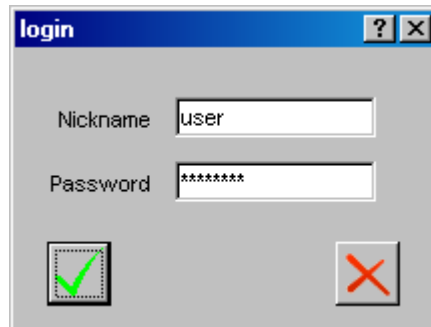
The InjMan program allows user controlled access to specific tables and actions, defining which actions each user can perform. Each operation can only be activated by an authorized operator.


Each network computer is set up with a default authorization level.

2.4.1. Login



Click on the  icon in the main toolbar. The following login dialog box appears:

A login dialog box titled "login" with a blue header bar containing a question mark and a close button. It has two input fields: "Nickname" with the text "user" and "Password" with masked characters "*****". At the bottom, there are two buttons: a green checkmark button on the left and a red X button on the right.

Enter user name and password and click . If the user is not recognized by the system an error message will appear.

Login should be performed when an operation requires a higher level of authorization than the computer station's default level. The system will now grant access in accordance with the user name.

2.4.2. Logout



To logout click the  icon on the main toolbar:

Logging out will reset authorization to the default level.

Remember: If you login as a user with a higher authorization level in order to perform a specific task, it is important to logout at the end of the task to prevent unauthorised activities.


Note: Automatic logout will occur after 30 minutes of inactivity.

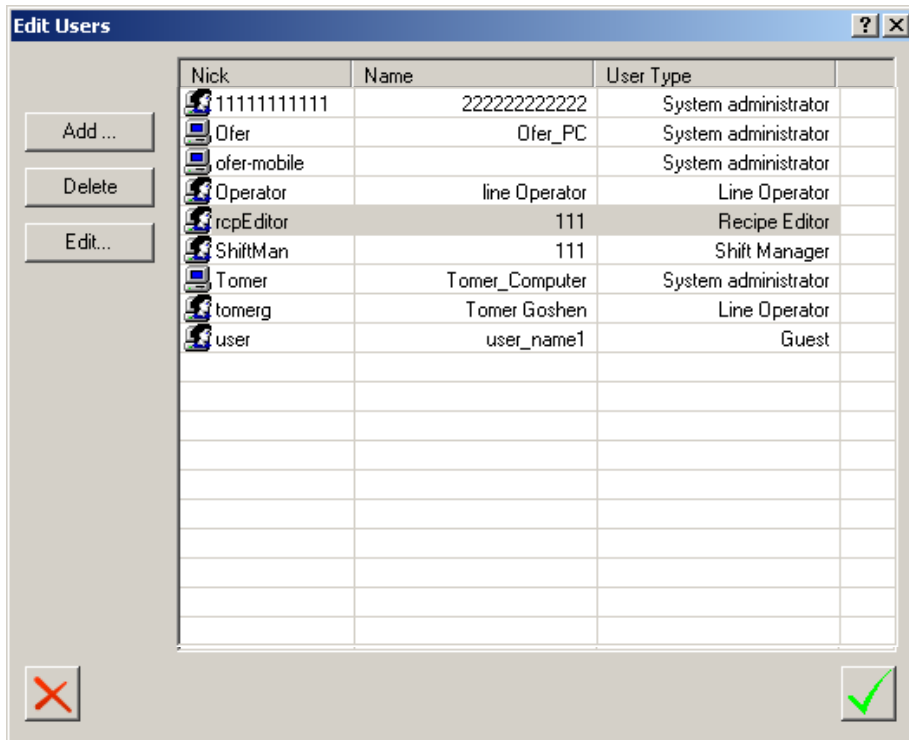
2.4.3. User Profile Definition

The system administrator defines new users and their access privilege levels.

Access privileges levels are set by group. Groups are created for users who require similar access to a resource. Each user is then assigned to a group by his or her *user type*.



Click on the  icon on the left hand side of the main toolbar. Click "Manage users" to open the following screen:



Use the "Edit Users" screen to edit and delete users.

2.4.4. Creating and Editing User Profiles

To add a new user, click the "Add" button (left hand side of the screen). Enter the information required:

Nickname – used as user name at login

Name – used to display current user, it is shown on the lower left hand side of the screen

User type – authorization group of user

Password – password for login

Computer - when the "Computer" checkbox is ticked the workstation will be identified automatically by the system without the need to login

Nickname:
 Name:
 User Type:
 Password:
 Confirm:
☐ Computer

Click to save and exit, to cancel and exit click .

Note: Clicking "edit" in the "Edit Users" screen will display the user information stored in the system.


2.4.5. Deleting a User

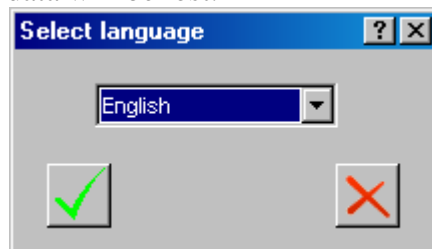
Use the mouse to highlight the user then click "delete". Click ✓ to save the changes, click X to cancel and exit.

2.5. Languages

The program provides local language interfaces in addition to English.

2.5.1. Changing Languages

To change the user interface language, click on the  icon on the main toolbar and then click "Select Language". Changing the language causes InjMan to restart – no data will be lost.



3. Changing Set Points


Some of the machine parameters have "set points" and "actual" values, the "set points" can be edited while the "actual" value is the measured value displayed on the screen (cannot be edited).

There are additional values that the operator can edit. These values are not essential for the machine operation but are used for documentation purposes, for example production order ID, mold data, raw material name etc.

"Set Points" can be edited directly or by recipe loading (loading a production order).

3.1. Directly Editing Set Points

Directly editing values is carried out in order to make minor, local changes during production.

Edit the required "Set Point" by highlighting it and clicking on the  icon or by double clicking. The "Edit" dialogue box will appear.

3.2. Loading Production Orders


An additional way of altering a set point is loading the next production order; see the "Production Order Queue" section.

4. Creating and Handling Production Orders

Production orders and all production order details are usually received from the ERP and automatically placed in the production order queue of the designated machine. Production orders created by the ERP should not be altered by the InjMan in any way (quantities, product, mold etc.). All changes should be made via the ERP itself.

In plants that do not use ERP the production orders should be created locally via the InjMan program.



In order to create a new production order, first click on the  icon and then on “New Production Order”. The “Production Order” screen will appear:

Production order

ID: 110032 Shifts: 1,2,3 Planned end time: 25/02/2009 11:38

Machine No.: 5 320-T Machine Name: 320-T ☐ Semi automate




Mold No.: TAV0915 Mold Name: תבנית קופסה 1.5 ליטר Standard cycle time: 12.5

☒ Assign directly to machine queue ☐ Works In Holidays


| Injections | Planned | Done | Remain | Remained Material | Estimated time |
|------------|---------|------|--------|-------------------|----------------|
| 0 | 0 | 0 | 0 | 0 | 00:00 |

CustomerID: 1000 CustomerName: 576

| Products | CatalogNo | Description | cav | Planned | Done | Rejected | Good | Left | Weight |
|---------------|---------------------|-------------|-----|---------|------|----------|------|-------|--------|
| BOX0915 | BOX 1.5L | 2 | 0 | 0 | 0 | 0 | 0 | 0.055 | |
| BOX1915 | BOX 1.5L | 2 | 0 | 0 | 0 | 0 | 0 | 0.061 | |
| CV0915ME30... | COVER BOX 1.5L-כתום | 2 | 0 | 0 | 0 | 0 | 0 | 0.039 | |
| CV0915ME44... | COVER BOX 1.5L-ורוד | 2 | 0 | 0 | 0 | 0 | 0 | 0.039 | |



Enter all of the required details and click  to confirm. After confirmation the new production order will enter the production order queue and wait to be loaded.

Each product has a formula that contains the dosing recipe (in plants whereby each machine has a designated dosing system). The recipes are stored in the program's database.




To define the product recipe click on the  icon.

4.1. Raw Materials

The raw materials are of utmost importance in the recipes and must always be kept up to date.





Click on the  icon on the main tool bar to access the “Raw Material” screen:

| Materials | | | | | | | |
|-------------|--------------------------|------------|---------------|---------|--------|---------|--|
| Catalog Num | Full Name | Short Name | Bulk Density(| Density | Materi | ID code | |
| 00000000 | -- | (null) | 0.560 | 1.000 | 0 | (null) | |
| 021408 | Grey Color | (null) | (null) | (null) | 0 | (null) | |
| 024570 | REGENT | (null) | (null) | (null) | 0 | (null) | |
| 027248 | Turquoise | (null) | (null) | (null) | 0 | (null) | |
| 099200 | Black Color | (null) | (null) | (null) | 0 | (null) | |
| 226525 | Petrol Blue | (null) | (null) | (null) | 0 | (null) | |
| BR | Barcodes 30X40 | (null) | (null) | (null) | 0 | (null) | |
| BS8025ME30 | MEDIUM BASKET-BI | (null) | (null) | (null) | 0 | (null) | |
| C186 | Red Color | (null) | (null) | (null) | 0 | (null) | |
| C7499 | Beige Color | (null) | (null) | (null) | 0 | (null) | |
| CM2244PEV/ | Whilte Color | (null) | (null) | (null) | 0 | (null) | |
| CTW | Compound+Talc | (null) | (null) | (null) | 0 | (null) | |
| DV2 | Glue 2 | (null) | (null) | (null) | 0 | (null) | |
| MB60351 | Blue Color | (null) | (null) | (null) | 0 | (null) | |
| ME024673 | Red Color | (null) | (null) | (null) | 0 | (null) | |
| ME026059 | Special light blue color | (null) | (null) | (null) | 0 | (null) | |
| ME200413 | Yellow Color | (null) | (null) | (null) | 0 | (null) | |
| ME200436 | Light Yellow Color | (null) | (null) | (null) | 0 | (null) | |
| ME20054 | Pearly Yellow Color | (null) | (null) | (null) | 0 | (null) | |
| ME20087A | Dark Yellow Color | (null) | (null) | (null) | 0 | (null) | |

Example of Raw Material screen

Actions

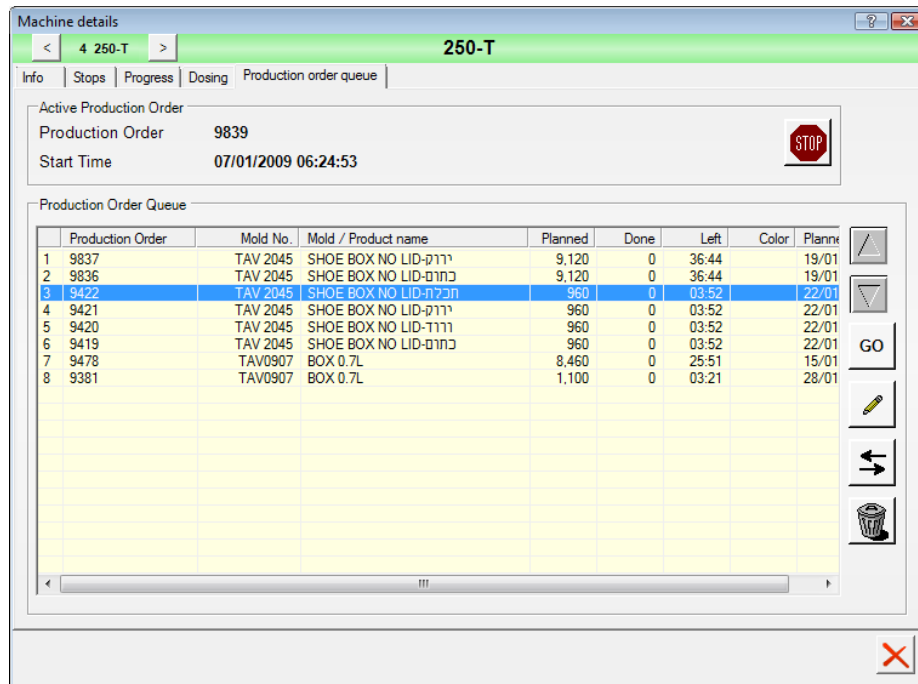
- Editing and deleting – as in Excel.
- Addition – simply write in the bottom line.
- Saving – click on the  icon to save without exiting. Click on the  icon to save and exit.

Fields

- Catalog Num –catalog number of the raw material
- Name –full name of the raw material
- Short Name – short name of raw material (up to 10 characters), used for displaying in places where the space for displaying the raw material name is limited. If a short name is not defined the first 10 characters of the full name will be used.
- Bulk Density – bulk density of raw material (weight of material per cm^3) – takes into consideration the air between pellets for example).
- Density – density of raw material
- Material – Numeric field used to define groups of raw material.
Dividing the raw materials into groups allows defining whether the raw material is a main material, additive or color and can be filtered to show only the relevant list.

4.2. Production Order Queue

Each machine has a production order queue that appears as follows:



Example of Production Order Queue



The current active production order appears on the upper part of the screen.

4.2.1. Loading Production Orders

Clicking on the GO icon loads the first production order of the queue, with all its pertinent recipe values, into the machine. A message will appear asking whether to return the currently active production order to the queue (sometimes the production order is incomplete and will be returned to at a later time).

4.2.2. Priority


The production orders are loaded according to the queue (top row first). The order of the queue can be changed by first highlighting the required production

order and then using the  and  icons to change the position of the production order.

4.2.3. Editing Production Orders

The production orders can be edited while they are in the production order queue. The changes will only be made to the waiting production order and will not influence the original production order.

To edit the production order, first highlight the required production order and

then click the  icon or double click the production order. The following screen appears:

Example of Production Order Screen

4.2.4. Moving Production Orders between Machines

In order to move a production order from one machine to another:

1. Highlight the required production order.



2. Click on the icon. Select the required machine on the dialogue box that appears.

4.2.5. Deleting Production Orders

In order to move a production order from one machine to another:

1. Highlight the required production order.



2. Click on the icon.

4.3. ERP Interface

The InjMan program can communicate with external systems, receive machine production orders and return performance reports.

The communication is by XML files whose format varies between installations.

4.3.1. Importing Production Orders

The production orders can be prepared via the ERP and imported by the InjMan. The product order will be added to the relevant machine's production order queue.

4.3.2. Exporting Production Order Performance Reports

At the end of each production order, whether completed or returned to the production order queue, the InjMan sends a performance report including accumulated amounts and times.

5. Database

The InjMan program database is MSDE (a compact version of SQL Server). The InjMan program automatically backs up the database and therefore requires no maintenance.

6. Reports

6.1. Content of reports


Certain machine values are constantly accumulated, such as injections, machine motor time, accumulated times according to machine status etc.

The InjMan program saves all of this data at the end of each shift, during each production order load and on editing of raw material names. The reports issued are according to these periods.

In general, it is more accurate to measure material entering the machine or absolute measurable values (injections), rather than material exiting the machine (products) because it is difficult or sometimes impossible to define the approved part of material measured in the machine exit. It is therefore preferable to issue reports of absolute accumulations or entries into the machine.

6.2. Creating Reports



In order to create reports click on the  icon and select the required report from the menu that appears. In most cases a dialogue box will appear allowing selecting the required machines, time periods and other report definitions.

In some of the dialogue boxes the “Write History” icon appears. Pressing this icon leads to the database being immediately updated. Usually the database is updated at the end of each shift and after each production order. In order for the report to contain current up to this minute data, press the “Write History” icon. The content and format of reports varies between installations and examples appear in the appendix.

7. Appendixes

7.1. Machine Screens

This appendix contains examples of *machine details* screens. As previously stated the *machine screens* vary between installations however the format is similar.

7.1.1. Machine Details

This screen shows the machine production data.

It is possible for several products to use the same family mold (one common mold for different products). The list of products appears on the bottom part of the screen. After highlighting a product, it is possible to change the number of cavities, to change the number of planned products or to enter rejects by pressing the appropriate button to the left of the list of products. Every change made automatically leads to a change in the planned injections.

Machine details HAITAI 1400

Info | Stops | Progress | Dosing | Production order queue

Production order: 000112

Planned: 2,500 | Done: 15 | Remain: 2,485

Start time: 30/12/2008 15:22 | Time left: 20:34

End time: 31/12/2008 12:34 | Remained Material: 1888.6

Color name: -

Delivery time: -

Customer name: -

Status: Working

Duration: 01:41:29

Since: 30/12/2008 14:19

☐ Setup

Production

Mold: BOLT 300

Start time: 30/12/2008 15:22 | Cycles: 15

Shift: 30/12/2008 16:00 | Cycles: 0

Production Order: 30/12/2008 15:22 | Cycles: 15

Mold No.: 10330

End time: 31/12/2008 12:34

Next: DBD 103

31/12/2008 12:34 | 2,485

Standard cycle time: 30.0

Products

| CatalogNo | Description | cav | Planned | Done | Rejected | Good | Left | Weight |
|-----------|-------------|-----|---------|------|----------|------|-------|--------|
| 1010307 | OUTER BODY | 4 | 10,000 | 60 | 0 | 60 | 9,940 | 0.06 |
| 1010308 | INNER BODY | 4 | 10,000 | 60 | 0 | 60 | 9,940 | 0.13 |

Example of Machine Details Screen

7.1.2. Stops

This screen shows a list of all the times that the machine was in a "stop" state. The reason for the stop has to be manually entered by selecting a cause from the list of causes for stops and pressing "apply".

It is also possible to change the reason for the stop: fault, stop or organizational cause (no order, no raw material etc.).

Machine details ARBURG 320C

Info Stops Progress Production order queue

| Status | Start Time | End Time | Time span | Reason |
|--------|---------------------|---------------------|-----------|----------------|
| Stop | 14/09/2004 15:06:48 | 14/09/2004 15:07:22 | 00:00:33 | |
| Fault | 14/09/2004 13:41:40 | 14/09/2004 14:10:28 | 00:28:48 | Injection unit |
| Fault | 14/09/2004 13:27:04 | 14/09/2004 13:41:40 | 00:14:35 | Injection unit |
| Fault | 12/09/2004 17:13:45 | 14/09/2004 13:27:04 | 44:13:18 | Injection unit |
| Stop | 12/09/2004 15:10:36 | 12/09/2004 17:13:45 | 02:03:09 | |
| Stop | 12/09/2004 15:05:12 | 12/09/2004 15:10:36 | 00:05:23 | |

08/09/2004 08:09 15/09/2004 08:09

Reasons

☒ Fault ☐ Stop

General
Hydraulic system
Injection condition
Injection unit
Machine controller
Material conveying
Mold
Robot

Apply

Filter

☐ Day
☐ 2 Days
☒ Week
☐ Month
☐ Year

Example of Stops Screen

7.1.3. Progress Graph

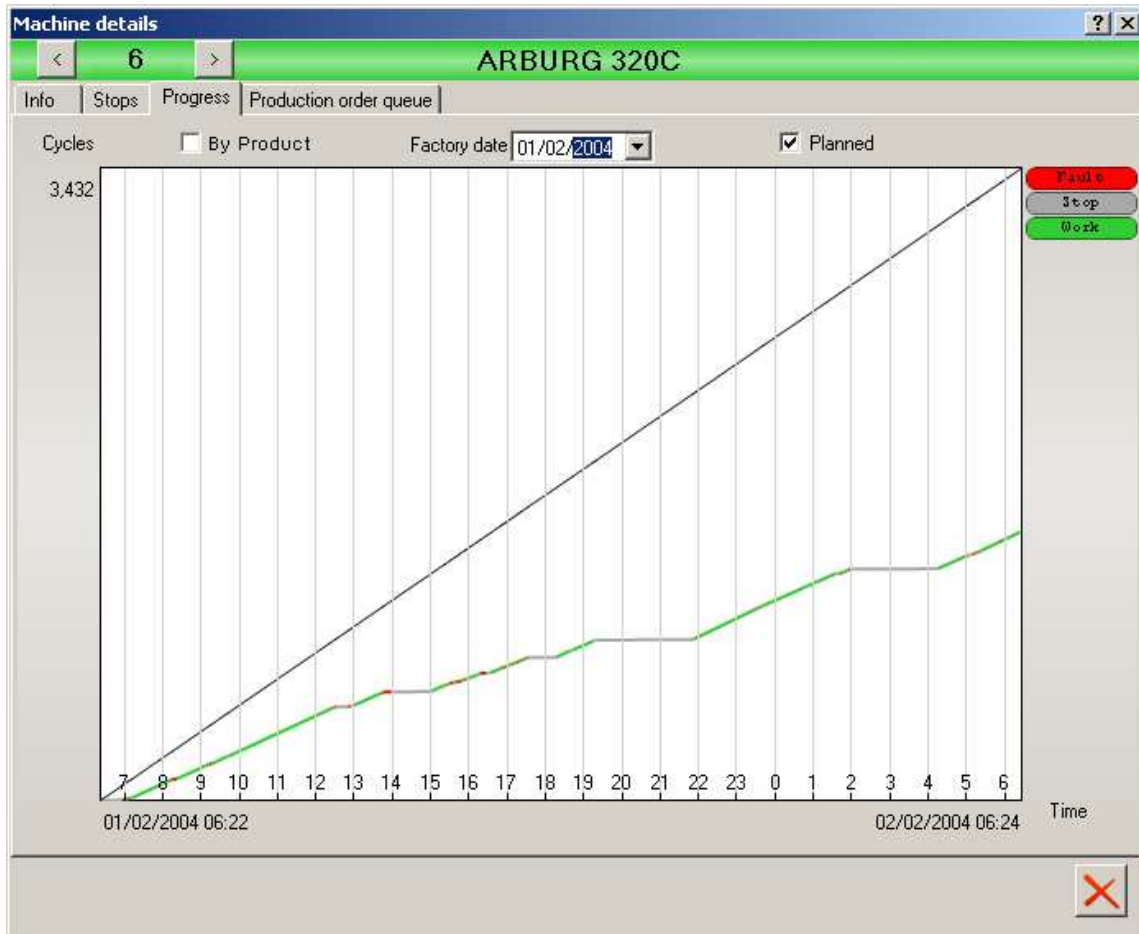
This screen shows a graph of the work progress on the chosen day, whereby:

Y Axis – number of injections

X Axis – time

The line color changes according to the machine status (work, fault, stop etc.).

The black line represents the planned workload (injections by standard cycle time, without breaks).



Example of Work Progress Screen

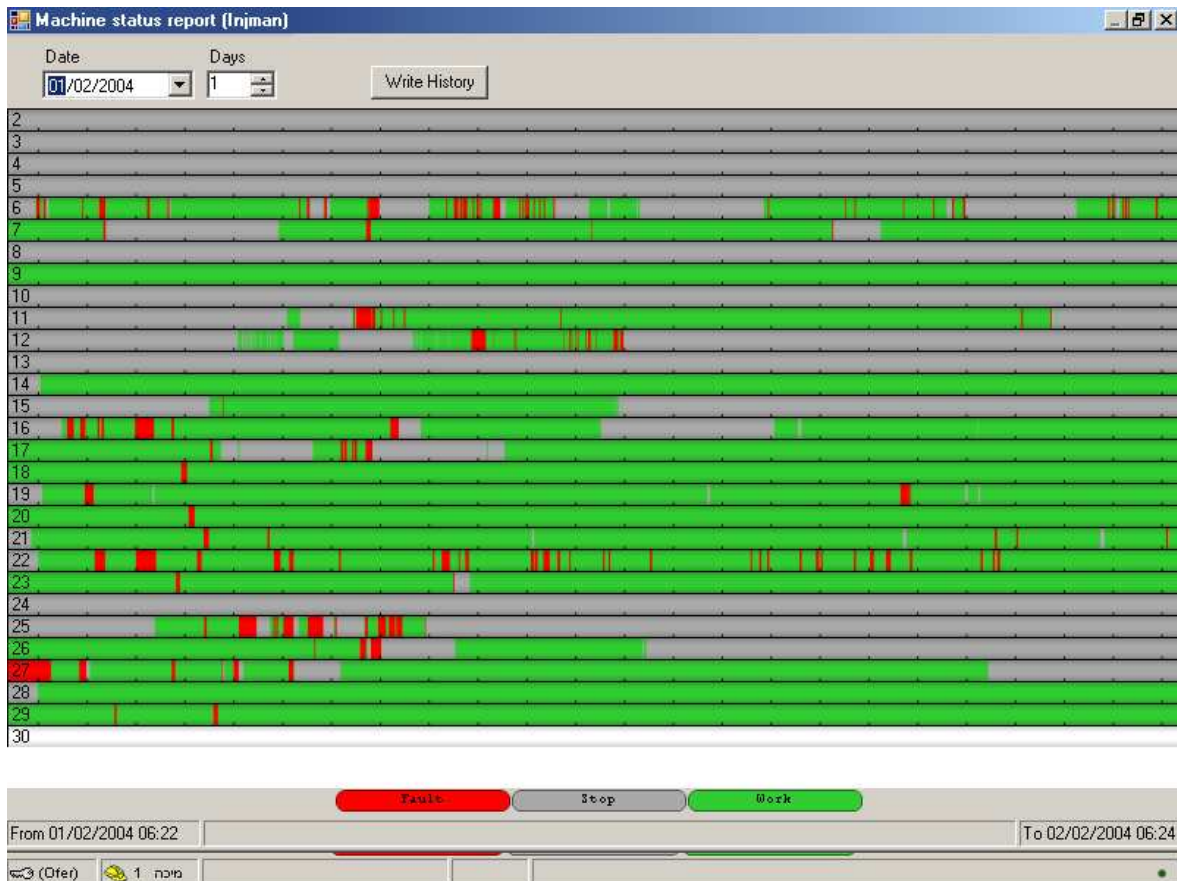
7.2. Reports

This appendix contains examples of reports. Custom reports can be added by Sysmetric on demand.

The program uses SQL server data base enabling the user to create custom reports.

7.2.1. Machine Status Report

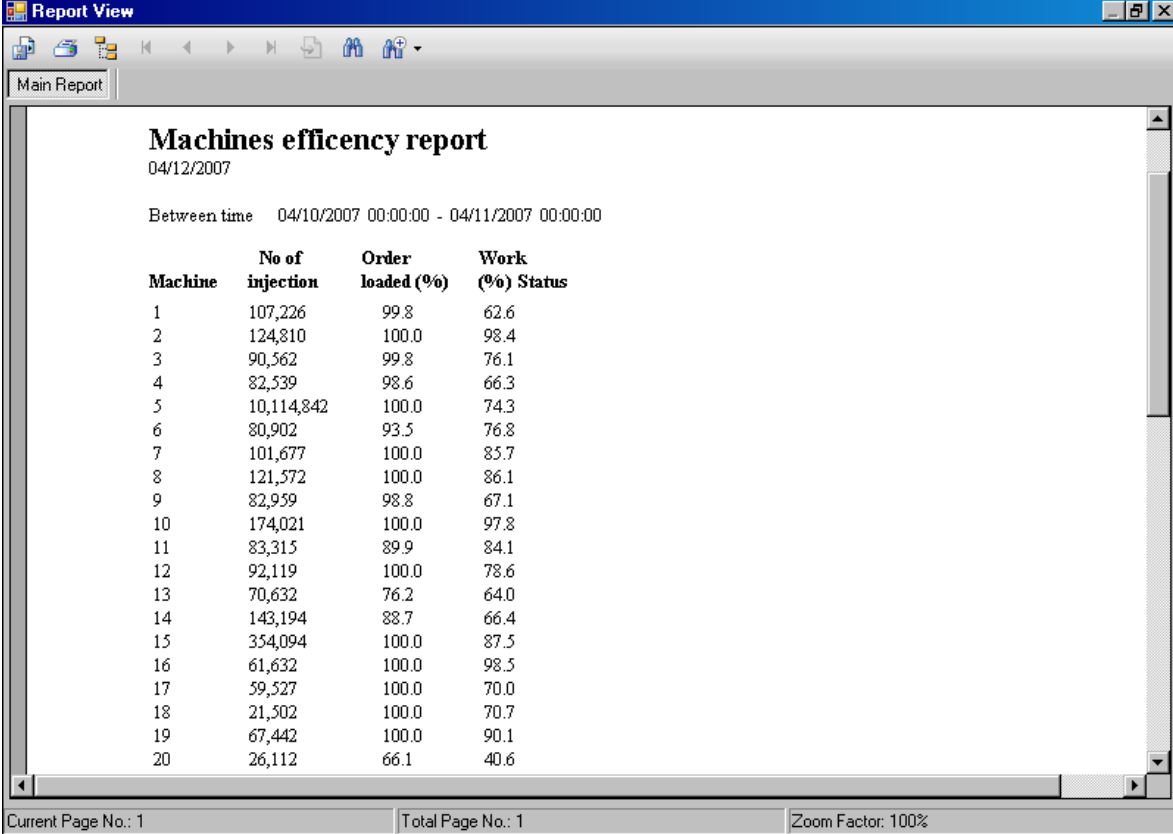
Gaant chart - the status of all of the machines on a specific date are represented by different colors.



Example of Machines Status Report Screen

7.2.2. Machine Efficiency Report

Select the "machine efficiency" in the "report" menu and mark the machines required for the report in the dialogue box that appears.



Machines efficiency report
04/12/2007

Between time 04/10/2007 00:00:00 - 04/11/2007 00:00:00

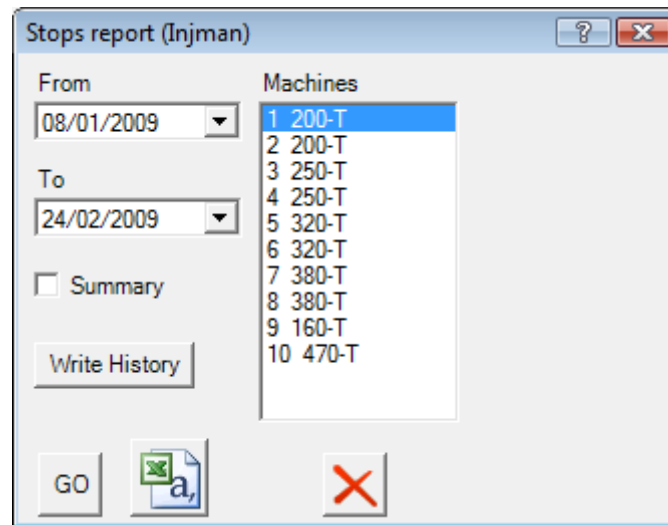
| Machine | No of injection | Order loaded (%) | Work (%) Status |
|---------|-----------------|------------------|-----------------|
| 1 | 107,226 | 99.8 | 62.6 |
| 2 | 124,810 | 100.0 | 98.4 |
| 3 | 90,562 | 99.8 | 76.1 |
| 4 | 82,539 | 98.6 | 66.3 |
| 5 | 10,114,842 | 100.0 | 74.3 |
| 6 | 80,902 | 93.5 | 76.8 |
| 7 | 101,677 | 100.0 | 85.7 |
| 8 | 121,572 | 100.0 | 86.1 |
| 9 | 82,959 | 98.8 | 67.1 |
| 10 | 174,021 | 100.0 | 97.8 |
| 11 | 83,315 | 89.9 | 84.1 |
| 12 | 92,119 | 100.0 | 78.6 |
| 13 | 70,632 | 76.2 | 64.0 |
| 14 | 143,194 | 88.7 | 66.4 |
| 15 | 354,094 | 100.0 | 87.5 |
| 16 | 61,632 | 100.0 | 98.5 |
| 17 | 59,527 | 100.0 | 70.0 |
| 18 | 21,502 | 100.0 | 70.7 |
| 19 | 67,442 | 100.0 | 90.1 |
| 20 | 26,112 | 66.1 | 40.6 |

Current Page No.: 1 Total Page No.: 1 Zoom Factor: 100%

Example of Machine efficiency Report

7.2.3. Stops

After selecting "Stops Report" in the "reports" menu the following dialogue box appears:



It is possible to create the report in one of two ways, in accordance with the "summary" check box:

1. The following is an example of the "stops report" when the "summary" check box is not ticked.

Report View

Main Report

Stops report 03/10/2007 - 04/12/2007
04/12/2007

| Mac | Order No. | Mold catalog No. | Mold name | Start time | End time | Duration (minutes) | Status | Description | Nick name |
|-----|-----------|------------------|-----------|---------------|---------------|--------------------|--------|------------------|---------------|
| 1 | 10710942 | 703 | 703 | 10/3/07 7:00 | 10/3/07 8:58 | 118.7 | Stop | Door lock | plastic-qa2 |
| 1 | 10710942 | 703 | 703 | 10/3/07 8:58 | 10/3/07 8:59 | 0.3 | Stop | Product run | plastic-qa2 |
| 1 | 10710942 | 703 | 703 | 10/3/07 8:59 | 10/3/07 9:02 | 3.0 | Stop | Reorganizing | plastic-qa2 |
| 1 | 10710942 | 703 | 703 | 10/3/07 9:02 | 10/3/07 9:10 | 7.7 | Stop | Reorganizing | plastic-qa2 |
| 1 | 10710942 | 703 | 703 | 10/3/07 9:47 | 10/3/07 9:48 | 1.6 | Stop | Product run | plastic-qa2 |
| 1 | 10710942 | 703 | 703 | 10/3/07 9:48 | 10/3/07 9:49 | 0.3 | Stop | Product run | plastic-qa2 |
| 1 | 10710942 | 703 | 703 | 10/3/07 10:10 | 10/3/07 10:11 | 1.2 | Stop | Product run | plastic-qa2 |
| 1 | 10710942 | 703 | 703 | 10/3/07 10:33 | 10/3/07 10:36 | 2.1 | Fault | Ejection problem | plastic-qa2 |
| 1 | 10710942 | 703 | 703 | 10/3/07 10:47 | 10/3/07 13:09 | 142.3 | Fault | Ejection problem | plastic-floor |
| 1 | 10710942 | 703 | 703 | 10/3/07 13:09 | 10/3/07 13:11 | 1.4 | Fault | Ejection problem | plastic-floor |
| 1 | 10710942 | 703 | 703 | 10/3/07 13:11 | 10/3/07 13:11 | 0.3 | Fault | Ejection problem | plastic-floor |
| 1 | 10710942 | 703 | 703 | 10/3/07 13:11 | 10/3/07 13:12 | 0.4 | Fault | Ejection problem | plastic-floor |
| 1 | 10710942 | 703 | 703 | 10/3/07 14:16 | 10/3/07 14:19 | 3.5 | Fault | Mold shield | plastic-floor |
| 1 | 10710942 | 703 | 703 | 10/3/07 14:35 | 10/3/07 14:39 | 3.3 | Fault | Mold shield | plastic-floor |
| 1 | 10710942 | 703 | 703 | 10/3/07 18:17 | 10/3/07 18:24 | 6.6 | Fault | Mold shield | plastic-floor |
| 1 | 10710942 | 703 | 703 | 10/3/07 19:38 | 10/3/07 19:41 | 3.0 | Fault | Mold shield | plastic-floor |
| 1 | 10710942 | 703 | 703 | 10/3/07 21:50 | 10/3/07 21:51 | 1.3 | Fault | Mold shield | plastic-floor |
| 1 | 10710942 | 703 | 703 | 10/3/07 21:51 | 10/3/07 21:54 | 2.8 | Fault | Mold shield | plastic-floor |

Current Page No.: 1 Total Page No.: 1+ Zoom Factor: 100%

2. The following is an example of the "stops report" when the "summary" check box is ticked. The report shows a summary of the stops according to type of stops:

Report View

Main Report

Stops summary report 03/10/2007 - 04/10/2007
04/12/2007

| Machine | Status | Description | Duration (m) | Percentage |
|---------|--------|------------------|--------------|------------|
| 1 | Stop | Door lock | 118.7 | 28.8 |
| | | Reorganizing | 10.7 | 2.6 |
| | | Product run | 3.4 | 0.8 |
| | | | 132.7 | 32.2 |
| | Fault | | 12.7 | 3.1 |
| | | Mold shield | 119.8 | 29.1 |
| | | Ejection problem | 146.5 | 35.6 |
| | | | 278.9 | 67.8 |
| | | | 411.7 | 100.0 |

Current Page No.: 1 Total Page No.: 1 Zoom Factor: 100%

7.2.4. Rejections Report

Report View

MainReport

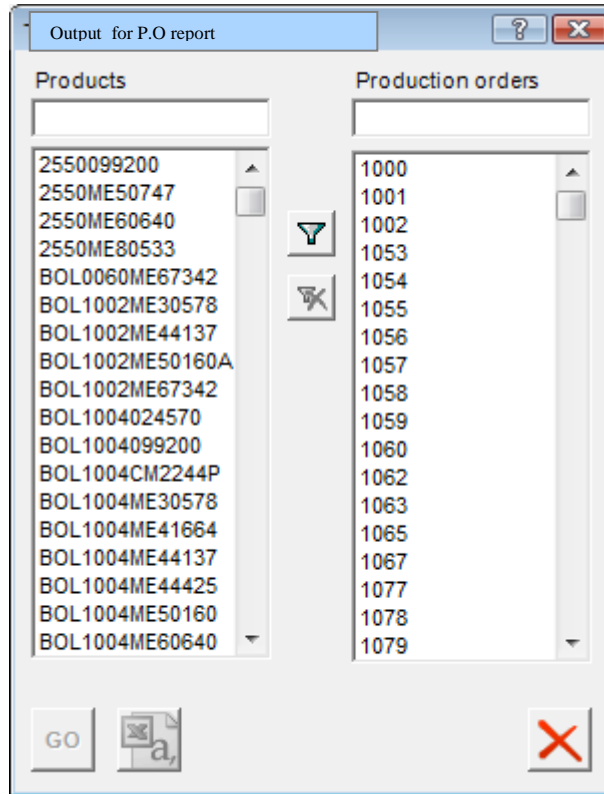
Rejections report 12/01/2004 - 06/02/2004
19/09/2004



| Machine | Production order | Product no. | Product name | Date | Shift | Quantity | Reason | Rejection time | Nick name |
|---------|------------------|-------------|-------------------------|------------|-------|----------|---------|---------------------|-----------|
| 6 | 9505 | 993060001 | M22291 Trigger | 12/01/2004 | 1 | 32 | General | 14/01/2004 07:35:09 | |
| 6 | 9541 | 993027002 | M22551 Fitting tip 12.5 | 22/01/2004 | 1 | 155 | General | 25/01/2004 14:19:36 | |
| 6 | 9541 | 993027002 | M22551 Fitting tip 12.5 | 22/01/2004 | 2 | 384 | General | 02/02/2004 07:53:19 | |
| 6 | 9571 | 635004002 | 46100015 סטרי לוחית IB- | 26/01/2004 | 1 | 92 | General | 27/01/2004 12:00:47 | |
| 6 | 9607 | 554117001 | SIM.CARD.DOOR | 27/01/2004 | 1 | 79 | General | 02/02/2004 07:41:48 | |
| 6 | 9618 | 417027001 | FRONT WINDOW | 02/02/2004 | 1 | 112 | General | 08/02/2004 08:22:36 | |
| 6 | 9618 | 417027001 | FRONT WINDOW | 02/02/2004 | 1 | 85 | General | 08/02/2004 08:22:46 | |
| 6 | 9618 | 417027002 | PRIZMA 800KP | 02/02/2004 | 1 | 112 | General | 08/02/2004 08:22:36 | |
| 6 | 9669 | 554085001 | SPACER, MEMORY | 06/02/2004 | 1 | 470 | General | 15/02/2004 11:52:55 | |

Current Page No.: 1 Total Page No.: 1 Zoom Factor: 100%

7.2.5. Output for Production Orders Report

After selecting "output for production orders" from the "reports" menu dialogue box appears:



After selecting one of the products from the list on the left hand side and pressing  only production orders concerning the selected product will appear in the list of production orders on the right. Pressing  cancels the filter, i.e. all of the production orders will appear on the right. The report shows the output of the selected production orders.

7.2.6. Daily Production Report

Report showing production totals by shifts.

Report View

Main Report

Daily production

04/12/2007

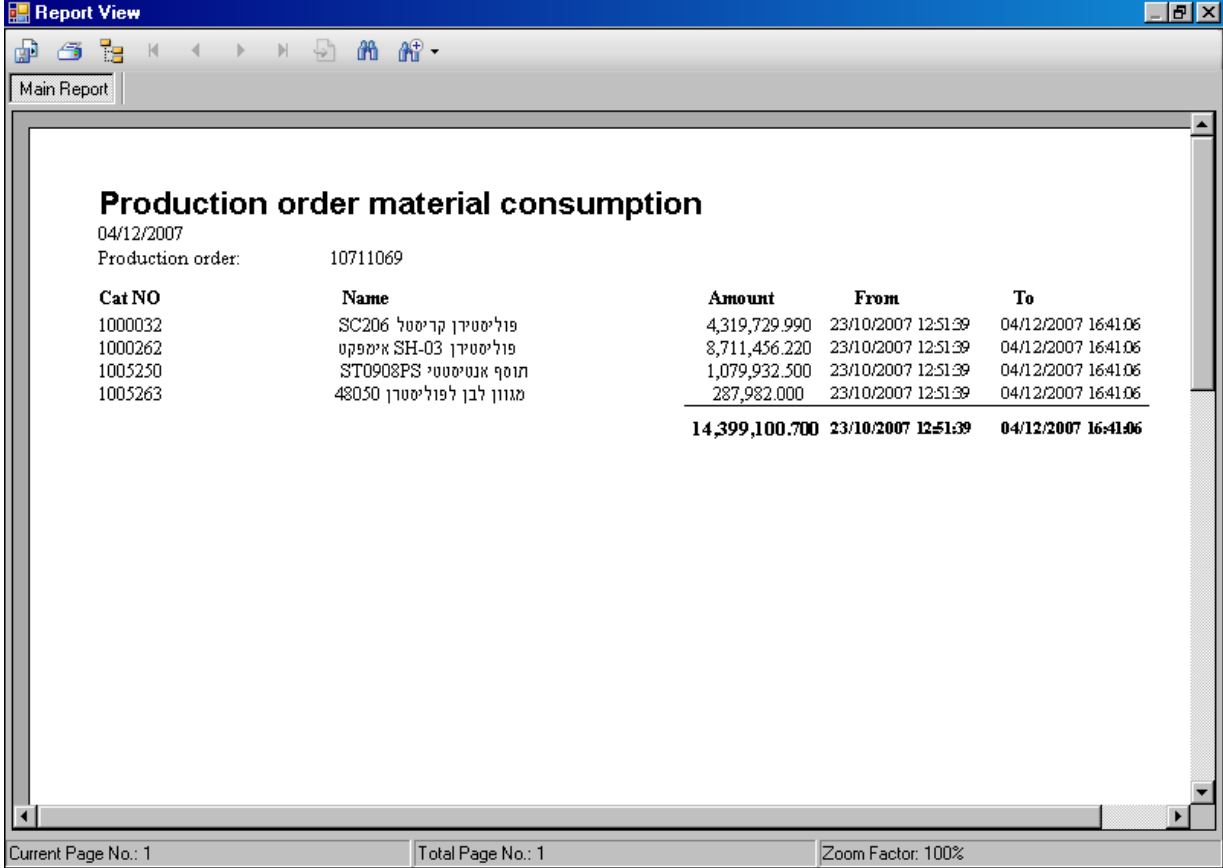
| | | | | Injections | Produce | Rejection |
|--|---|---------|-----------------------------------|--------------|--------------|-----------|
| Machine : 1 Production order : 10710908 | | | | | | |
| Shift: 01/10/2007 | 1 | | | 1,492 | | |
| 1010045 | | NRG 341 | 01/10/2007 07:00 01/10/2007 16:00 | | 2,984 | |
| Shift: 01/10/2007 | 2 | | | 1,232 | | |
| 1010045 | | NRG 341 | 01/10/2007 16:00 02/10/2007 00:00 | | 2,464 | |
| Shift: 01/10/2007 | 3 | | | 401 | | |
| 1010045 | | NRG 341 | 02/10/2007 00:00 02/10/2007 07:00 | | 802 | |
| Day's total: | | | | 3,125 | 6,250 | |
| Production order's total: | | | | 3,125 | 6,250 | |
| Machine's total: | | | | 3,125 | 6,250 | |
| Machine : 2 Production order : | | | | | | |
| Shift: 01/10/2007 | 1 | | | | | |
| | | | 01/10/2007 07:00 01/10/2007 16:00 | 606 | | |

Current Page No.: 1 Total Page No.: 1+ Zoom Factor: 100%

Example of Daily Production Report

7.2.7. Production Order Raw Material Consumption Report by Time

The report shows the raw material consumption during a specific production order during the defined time



Report View

Main Report

Production order material consumption
04/12/2007
Production order: 10711069

| Cat NO | Name | Amount | From | To |
|---------|----------------------------|-----------------------|----------------------------|----------------------------|
| 1000032 | פוליסטירן קריסטל SC206 | 4,319,729.990 | 23/10/2007 12:51:39 | 04/12/2007 16:41:06 |
| 1000262 | פוליסטירן SH-03 אימפקט | 8,711,456.220 | 23/10/2007 12:51:39 | 04/12/2007 16:41:06 |
| 1005250 | תוסף אנטיסטטי ST0908PS | 1,079,932.500 | 23/10/2007 12:51:39 | 04/12/2007 16:41:06 |
| 1005263 | מגוון לבן לפוליסטירן 48050 | 287,982.000 | 23/10/2007 12:51:39 | 04/12/2007 16:41:06 |
| | | 14,399,100.700 | 23/10/2007 12:51:39 | 04/12/2007 16:41:06 |


Current Page No.: 1 Total Page No.: 1 Zoom Factor: 100%

Example of Production Order Raw Material Consumption Report

7.2.8. Raw Material Consumption by Time Report

This report shows material consumption per machine per production order during the defined time period.

Report View



Main Report

Material consumption by time

04/12/2007

| Machine | Production order NO | Catalog No | Name | Amount | Start time | End time |
|---------|---------------------|------------|--------------|-------------|---------------------|---------------------|
| 1 | 10711054 | 1000026 | TRSD | 107.780 | 23/10/2007 16:00:00 | 24/10/2007 18:54:19 |
| | | 1005001 | 7351A | 2.200 | 23/10/2007 16:00:00 | 24/10/2007 18:54:19 |
| | Production order | | | 109.980 | 23/10/2007 16:00:00 | 24/10/2007 18:54:19 |
| | 10711072 | 1000026 | TRSD | 21.700 | 25/10/2007 16:00:00 | 26/10/2007 01:58:42 |
| | | 1005242 | Red ME40207 | 0.440 | 25/10/2007 16:00:00 | 26/10/2007 01:58:42 |
| | Production order | | | 22.140 | 25/10/2007 16:00:00 | 26/10/2007 01:58:42 |
| | 10711079 | 1000026 | TRSD | 57.800 | 24/10/2007 18:54:19 | 25/10/2007 09:19:14 |
| | | 1005367 | CYAN ME57172 | 1.180 | 24/10/2007 18:54:19 | 25/10/2007 09:19:14 |
| | Production order | | | 58.980 | 24/10/2007 18:54:19 | 25/10/2007 09:19:14 |
| | Machine: | | | 191.100 | 23/10/2007 16:00:00 | 26/10/2007 01:58:42 |
| 2 | 10711032 | 1000282 | BK11 PM4501 | 180,376.000 | 23/10/2007 16:00:00 | 28/10/2007 16:03:39 |
| | | | | 180,376.000 | 23/10/2007 16:00:00 | 28/10/2007 16:03:39 |
| | Machine: | | | 180,376.000 | 23/10/2007 16:00:00 | 28/10/2007 16:03:39 |

Current Page No.: 1

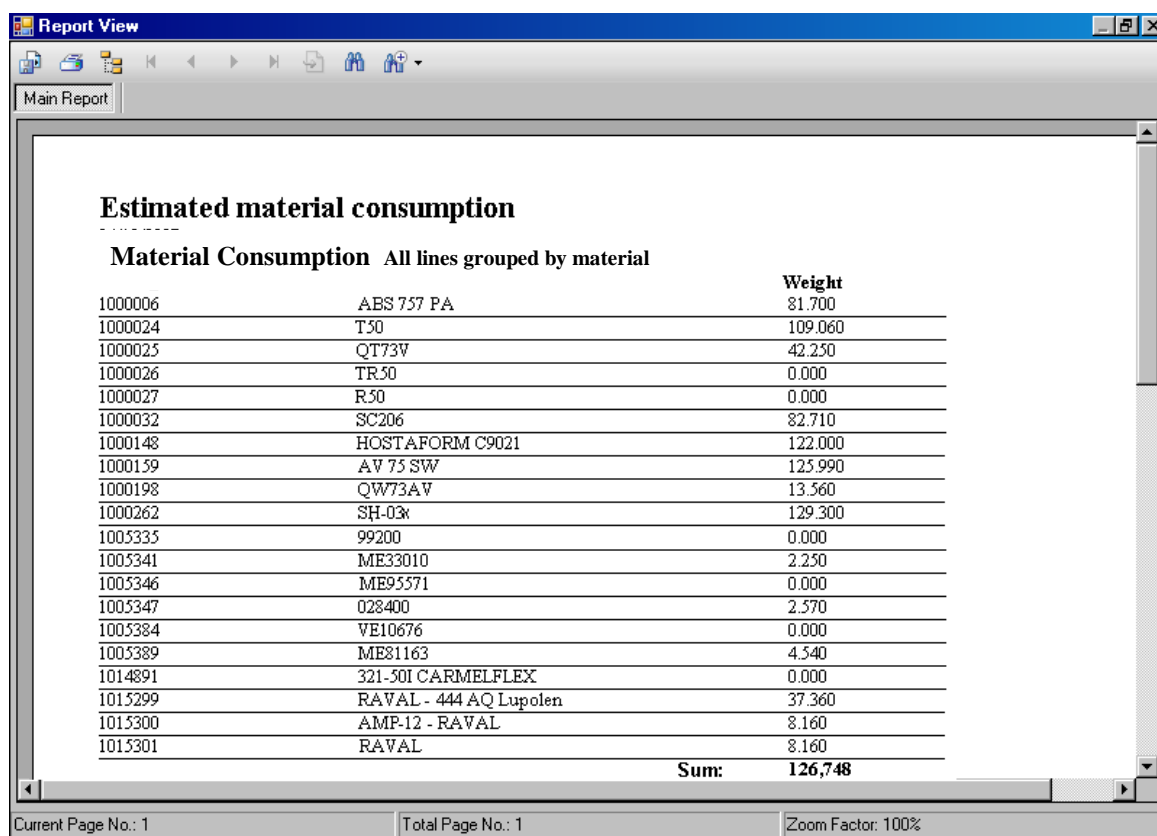
Total Page No.: 1+

Zoom Factor: 100%

Example of Raw Material Consumption by Time Report

7.2.9. Raw Material Consumption Grouped by Material

The report shows the the total wieght of each raw material used in all lines.



Report View

Main Report

Estimated material consumption

Material Consumption All lines grouped by material

| | | Weight |
|-------------|------------------------|----------------|
| 1000006 | ABS 757 PA | 81.700 |
| 1000024 | T50 | 109.060 |
| 1000025 | QT73V | 42.250 |
| 1000026 | TR50 | 0.000 |
| 1000027 | R50 | 0.000 |
| 1000032 | SC206 | 82.710 |
| 1000148 | HOSTAFORM C9021 | 122.000 |
| 1000159 | AV 75 SW | 125.990 |
| 1000198 | QW73AV | 13.560 |
| 1000262 | SH-03x | 129.300 |
| 1005335 | 99200 | 0.000 |
| 1005341 | ME33010 | 2.250 |
| 1005346 | ME95571 | 0.000 |
| 1005347 | 028400 | 2.570 |
| 1005384 | VE10676 | 0.000 |
| 1005389 | ME81163 | 4.540 |
| 1014891 | 321-501 CARMELFLEX | 0.000 |
| 1015299 | RAVAL - 444 AQ Lupolen | 37.360 |
| 1015300 | AMP-12 - RAVAL | 8.160 |
| 1015301 | RAVAL | 8.160 |
| Sum: | | 126,748 |



Current Page No.: 1 Total Page No.: 1 Zoom Factor: 100%

Example of Raw Material Consumption Report by Raw Material

7.2.10. Production Order Queue Report

Report showing the machines' production order queue. The report can be created for some or all of the machines. The currently active production orders are marked by -√

Report View

Main Report

Production order queue

04/12/2007

| Production order No | Mold | Product No | Product name | Start time | Estimated end time | Duration | Injection | | | |
|---------------------|------|------------|--------------|---------------------------------|--------------------|------------------|-----------|--------|--------|---------|
| | | | | | | | Planned | Actual | Left | |
| 1 | | | | | | | | | | |
| 10711066 | ✓ | 540 | 1015313 | "IGSL DIVIDER B.B | 28/10/2007 10:52 | 05/12/2007 06:59 | 908.1 | 2,000 | 0 | 2,000 |
| 10711072 | | 66 | 1011626 | "IB-620x932x13 5-1-RED STD | 05/12/2007 06:59 | 05/12/2007 06:52 | -0.1 | 2,187 | 2,214 | -27 |
| 3 | | | | | | | | | | |
| 10711057 | | 169 | 1015222 | "IB-260x260x8 2-10-SILVER/SCA | 24/10/2007 16:29 | 08/12/2007 06:09 | 1,069.7 | 35,084 | 21,149 | 13,935 |
| 4 | | | | | | | | | | |
| 10711071 | | 546 | 1011982 | "CP6-CAP-A-TRANSPARENT | 28/10/2007 15:01 | 08/12/2007 23:36 | 992.6 | 39,999 | 14,999 | 25,000 |
| 10711090 | | 63 | 1010057 | "IB-LID-C-655x973-TRANSPARENT-W | 08/12/2007 23:36 | 09/12/2007 20:44 | 211 | 20,108 | 15,883 | 4,225 |
| 10 | | | | | | | | | | |
| 10711074 | | 529 | 1011715 | "IB-LID-A-40x98-TRANSPARENT | 28/10/2007 10:42 | 07/12/2007 15:17 | 964.6 | 25,116 | 1,604 | 23,512 |
| 10711048 | | 529 | 1011820 | "IB-LID-A-40x98-COVER-TT | 07/12/2007 15:17 | 06/12/2007 05:07 | -34.2 | 38,223 | 49,402 | -11,179 |
| 11 | | | | | | | | | | |
| 10711066 | | 551 | 1014781 | "CP6-PLUG-SILVER | 24/10/2007 07:57 | 13/12/2007 11:08 | 1,203.2 | 75,114 | 24,305 | 50,809 |
| 12 | | | | | | | | | | |
| 10711075 | | 552 | 1012038 | "CP20-PLUG-BLUE LIGHT | 28/10/2007 10:40 | 05/12/2007 00:04 | 901.4 | 1,299 | 105 | 1,194 |
| 10711076 | | 552 | 1014783 | "CP20-PLUG-SILVER | 05/12/2007 00:04 | 06/12/2007 04:57 | 28.9 | 4,000 | 0 | 4,000 |
| 10711096 | | 448 | 1011024 | 110X2"2 กระจก | 06/12/2007 04:57 | 06/12/2007 12:27 | 7.5 | 1,500 | 0 | 1,500 |
| 10711097 | | 448 | 1011221 | 110X2"2 กระจก | 06/12/2007 12:27 | 07/12/2007 00:57 | 12.5 | 2,500 | 0 | 2,500 |
| 10711098 | | 448 | 1011020 | 110X2"2 กระจก | 07/12/2007 00:57 | 15/12/2007 13:57 | 205.0 | 41,000 | 0 | 41,000 |

Current Page No.: 1

Total Page No.: 1+

Zoom Factor: 82%

Example of Production Order Queue Report